

Claims

1. An overflow control method for frame synchronization in a wireless communication network system, said wireless communication network system including a radio network controller, a first base station, a second base station, and a mobile unit, wherein said radio network controller transmits a plurality of data frames to said first base station and said second base station, a first link exists between said mobile unit and said first base station, said first base station transmits received data frames to said mobile unit through said first link, said second base station includes a register for storing received data frames, said register has a judging storage capacity, said overflow control method comprising:
 - (a) determining whether a number of said plurality of data frames received by said second base station is larger than said judging storage capacity;
 - (b) if said number of said plurality of data frames is larger than said judging storage capacity, calculating an X by subtracting said judging storage capacity from said number of said plurality of data frames; and
 - (c) deleting X of data frames from said register.
2. The overflow control method of claim 1, further comprising:
 - (d) detecting a link quality of said first link; and
 - (e) determining whether said link quality is lower than a preset value.
3. The overflow control method of claim 2, further comprising:
 - (f) if said link quality is lower than said preset value, calculating a CS1 equal to a number of data frames already transmitted by said first base station to said mobile unit;

- (g) calculating a CS2 equal to a number of data frames already deleted from said second base station;
 - (h) transmitting said CS1 to said radio network controller;
 - (i) transmitting said CS1 to said second base station after said CS1 is received by said radio network controller; and
 - (j) calculating an N by subtracting said CS2 from said CS1.
4. The overflow control method of claim 2, further comprising:
- (k) if said link quality is lower than said preset value, calculating a CS2 equal to a number of data frames already deleted from said second base station;
 - (l) calculating a CRue equal to a number of data frames already received by said mobile unit;
 - (m) transmitting said CRue to said second base station; and
 - (n) calculating an N by subtracting said CS2 from said CRue.
5. The overflow control method of claim 2, further comprising:
- (o) if said link quality is lower than said preset value, calculating an N equal to a number of data frames not yet deleted from said second base station and already received by said mobile unit.
6. The overflow control method of claim 5, wherein said first link has a wireless transmission capacity, said step (o) further comprising:
- (oa) calculating a CS1 equal to a number of data frames already transmitted by said first base station to said mobile unit;

- (ob) calculating a CS2 equal to a number of data frames already deleted from said second base station; and
 - (oc) determining whether said CS1 is larger than said wireless transmission capacity.
7. The overflow control method of claim 6, said step (o) further comprising:
- (od) if said CS1 is larger than said wireless transmission capacity, transmitting said CS1 to said radio network controller;
 - (oe) transmitting said CS1 to said second base station after said CS1 is received by said radio network controller; and
 - (of) calculating an N by subtracting said CS2 from said CS1.
8. The overflow control method of claim 6, said step (o) further comprising:
- (og) if said CS1 is not larger than said wireless transmission capacity, calculating a CRue equal to a number of data frames already received by said mobile unit;
 - (oh) transmitting said CRue to said second base station; and
 - (oi) calculating an N by subtracting said CS2 from said CRue.
9. The overflow control method of claim 5, wherein said first link has a wireless transmission capacity, said step (o) further comprising:
- (oj) calculating a CRue equal to a number of data frames already received by said mobile unit;
 - (ok) calculating a CRue* equal to a remainder resulting from dividing said CRue by said wireless transmission capacity;
 - (ol) transmitting said CRue* to said second base station;

- (om) calculating a $CS2^*$ equal to a remainder resulting from dividing said $CS2$ by said wireless transmission capacity; and
 - (on) calculating an N by subtracting said $CS2^*$ from said $CRue^*$.
10. The overflow control method of claim 3, further comprising:
- (p) determining whether said N is larger than zero; and
 - (q) if said N is larger than zero, deleting N of data frames from said register.
11. The overflow control method of claim 10, wherein data frames are stored in said register in a sequence, said steps (c) and (q) are executed according to said sequence.
12. The overflow control method of claim 10, further comprising:
- breaking off said first link, and choosing said second base station to set up a second link between said mobile unit and said second base station.
13. An overflow control method for frame synchronization in a wireless communication network system, said wireless communication network system including a radio network controller, a first base station, a second base station, and a mobile unit, wherein said radio network controller transmits a plurality of data frames to said first base station and said second base station, a first link exists between said mobile unit and said first base station, said first base station transmits received data frames to said mobile unit through said first link, said second base station includes a register for storing received data frames, said register has a judging storage capacity, said overflow control method comprising:

- (a) determining whether a number of said plurality of data frames received by said second base station is larger than said judging storage capacity;
 - (b) if said number of said plurality of data frames is larger than said judging storage capacity, calculating an X by subtracting said judging storage capacity from said number of said plurality of data frames;
 - (c) deleting X of data frames from said register;
 - (d) detecting a link quality of said first link;
 - (e) determining whether said link quality is lower than a preset value;
 - (f) if said link quality is lower than said preset value, calculating an N equal to a number of data frames not yet deleted from said second base station and already received by said mobile unit;
 - (g) determining whether said N is larger than zero; and
 - (h) if said N is larger than zero, deleting N of data frames from said register.
14. The overflow control method of claim 13, wherein said first link has a wireless transmission capacity, said step (f) further comprising:
- (fa) calculating a CS1 equal to a number of data frames already transmitted by said first base station to said mobile unit;
 - (fb) calculating a CRue equal to a number of data frames already received by said mobile unit;
 - (fc) calculating a CRue* equal to a remainder resulting from dividing said CRue by said wireless transmission capacity;
 - (fd) transmitting said CRue* to said second base station;
 - (fe) calculating a CS2 equal to a number of data frames already deleted from said second base station;

- (ff) calculating a $CS2^*$ equal to a remainder resulting from dividing said $CS2$ by said wireless transmission capacity; and
 - (fg) calculating an N by subtracting said $CS2^*$ from said $CRue^*$.
15. The overflow control method of claim 13, wherein said data frames are stored in said register in a sequence, said steps (c) and (h) are executed according to said sequence.
16. The overflow control method of claim 13, further comprising:
breaking off said first link, and choosing said second base station to set up a second link between said mobile unit and said second base station.
17. A wireless communication system for performing the overflow control method of claim 1.
18. A wireless communication system for performing the overflow control method of claim 13.